

What is Claimed is:

- B* *sub C27*
1. (amended) An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:
 - (a) a first nucleotide sequence which is a polymorphic variant of a reference sequence for the β_2 -adrenergic receptor (β_2 AR) gene, wherein the polymorphic variant is a β_2 AR isogene, wherein the first nucleotide sequence is selected from the group consisting of SEQ ID NOS:19-30; and
 - (b) a second nucleotide sequence which is complementary to the first nucleotide sequence.
 2. (canceled)
 3. The isolated polynucleotide of claim 1 which is a DNA molecule and comprises both the first and second nucleotide sequences and further comprises expression regulatory elements operably linked to the first nucleotide sequence.
 4. A recombinant organism transformed or transfected with the isolated polynucleotide of claim 3.
 5. The recombinant organism of claim 4 which is a genetically-modified animal.
 6. (canceled)
 7. (amended) A composition comprising at least one genotyping oligonucleotide for detecting a polymorphism in the β_2 -adrenergic receptor (β_2 AR) gene at a polymorphic site selected from the group consisting of PS2 and PS5, wherein the oligonucleotide is at least 15 nucleotides long.
 8. (amended) The composition of claim 7, wherein the genotyping oligonucleotide is an allele-specific oligonucleotide that specifically hybridizes to an allele of the β_2 AR gene at a region containing the polymorphic site, wherein the oligonucleotide comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS:3-6.
 9. (canceled previously)
 10. (canceled previously)
 11. (canceled previously)
 12. (canceled previously)
 13. (canceled)
- B2*

- 14. (canceled)
- 15. (canceled)
- 16. (canceled)
- 17. (canceled)
- 18. (canceled)
- 19. (canceled)
- 20. (canceled)
- 21. (canceled previously)
- 22. (canceled previously)
- 23. (canceled previously)
- 24. (canceled previously)
- 25. (canceled)
- 26. (canceled)
- 27. (canceled)
- 28. (canceled)

sub C3 29. A genome anthology for the β_2 -Adrenergic Receptor gene (β_2 -AR) gene which comprises β_2 AR isogenes defined by haplotypes 1-12 shown in Table 5.

- B3
- 30. (new) The isolated polynucleotide of claim 3, wherein the DNA molecule is an expression vector.
 - 31. (new) A recombinant cell comprising the expression vector of claim 30.
 - 32. (new) The composition of claim 7, wherein the genotyping oligonucleotide is selected from the group consisting of an allele-specific primer and a primer extension oligonucleotide, wherein the allele-specific oligonucleotide primer is selected from the group consisting of SEQ ID NOS:7-14 and the primer extension oligonucleotide is selected from the group consisting of SEQ ID NOS:15-18.